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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,394	04/01/2004	Farbod Aram	MP0409	1663

26703 7590 10/05/2005

HARNESS, DICKEY & PIERCE P.L.C.
5445 CORPORATE DRIVE
SUITE 400
TROY, MI 48098

EXAMINER

DAVIDSON, DAN

ART UNIT PAPER NUMBER

2651

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/816,394	Applicant(s) ARAM ET AL.	
	Examiner Dan I. Davidson	Art Unit 2651	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,18,20,21,37,39 and 40 is/are rejected.
- 7) ☒ Claim(s) 3-17,19,22-36,38 and 41-43 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>04012004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The information disclosure statement filed April 1, 2004 has been received and has been considered and made of record.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-2, 18, 20-21, 37, and 39-40 are rejected under 35 U.S.C. 102(e) as being anticipated by Leighton et al (US 6,813,110 B2).

Re claims 1, 18, 20, 37, and 39; Leighton et al disclose a write driver system in a magnetic storage system (col. 1, line 12), comprising: a control circuit that includes first switching devices (Fig. 3, Q_c & Q_D) and that generates gate drive signals (Fig. 3, input to Q_A & Q_B); and a write driver circuit for generating write current that includes second switching devices that are controlled by the gate drive signals from the control circuit (Fig. 3, Q_A & Q_B), wherein the second switching devices have higher voltage thresholds than the first switching devices (col. 4, lines 11-13) and wherein the second switching devices have slower switching times than the first switching devices (col. 4, lines 1-5).

Re claims 2, 21, and 40; Leighton et al disclose that the write driver circuit generates a boost current followed by a write current when transitioning from one magnetic polarity to an opposite magnetic polarity during write operations (Fig. 4E).

Allowable Subject Matter

4. Claims 3-17, 19, 22-36, 38, and 41-43 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Re claims 3, 22, and 41; the prior art of record, and in particular Leighton et al (US 6,813,110 B2), fails to teach or suggest N predriver circuits that receive respective ones of the N control signals.

Re claims 16, 35, and 43; the prior art of record, and in particular Leighton et al (US 6,813,110 B2), fails to teach or suggest that the write driver circuit selectively connects the first positive and negative voltage potentials across the write head during the boost stage and the second positive and negative voltage potentials across the write head during the write stage.

Re claim 42; the prior art of record, and in particular Leighton et al (US 6,813,110 B2), fails to teach or suggest that the gate drive signals exceed the voltage thresholds of the first switching devices and do not exceed the voltage thresholds of the second switching devices.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Brannon et al (US 5,612,828 A) teach improving the switching time of transistors in a write driver circuit using a pair of anti-saturation circuits.

Aranovsky (US 5,550,502 A) teaches a write driver circuit that controls the voltage level input to a switch circuit, providing increase4d range for head voltage swings and fast current switching.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dan I. Davidson whose telephone number is (571) 272-7552. The examiner can normally be reached on Monday-Friday from 8:30AM to 5:00PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R. Hudspeth, can be reached on (571) 272-7843. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DID
Dan I Davidson
September 20, 2005


DAVID HUDSPETH
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600